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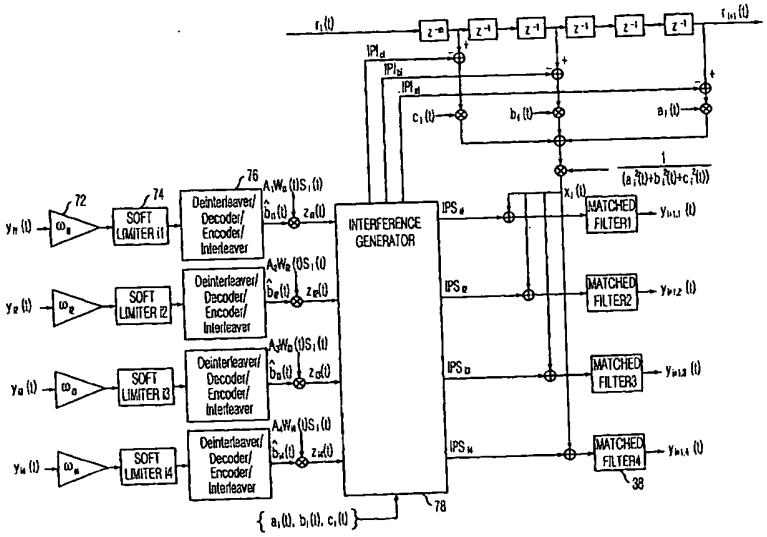
(54) Title: MULTISTAGE ADAPTIVE PARALLEL INTERFERENCE CANCELLER



(57) Abstract: A multistage adaptive parallel interference canceller is disclosed. The multistage adaptive parallel interference canceller for a downlink receiver includes: a plurality of stages of interference cancellation units. Each of interference cancellation units includes: a matched filter for matching a signal from a rake receiver each channel signal and generating a matched signal; a soft decision unit of which a slope is monotonically increased, for performing soft decision of the matched signal and generating a soft-decided signal; a weight controller for controlling the slope of the soft decision unit; a respreader for respreading the soft-decided signal based on a walsh code and a scrambling code and generating a respread signal; an interference calculator for calculating interference signals due to another user signal and multipath signals; and an interference canceller for canceling the interference signals from an input signal received in the rake receiver.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR03/01412

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04B 1/707

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC7 H04B 1/69 707, 7/204 216

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
search terms : multi-user detection, adaptive partial parallel interference canceller, soft decision, variable weight

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Yue-heng Li, etc., "Determination of cancellation factors for soft-decision partial PIC detector in DS/CDMA systems," Electronics Letters, Vol. 36, Issue 3, pp 239-241, 3 Feb. 2000	1-5, 9-13, 17-21, 24-28
Y	Ramy H. Gohary, etc., "An adaptive parallel interference cancellation system employing soft decisions for asynchronous DS/CDMA multipath fading channels," Global Telecommunications Conference, 2001. GLOBECOM '01. IEEE , Vol. 5, pp 3145-3147, 25-29 Nov. 2001	1-5, 9-13, 17-21, 24-28
A	J. H. Wen, etc., "Fuzzy-based adaptive partial parallel interference canceller for CDMA communication systems over fading channels," Communications, IEE Proceedings, Vol. 149, Issue 2, pp 111-114, Apr. 2002	1-5, 9-13, 17-21, 24-28
A	Qinfang Sun, "A pipelined multi-stage parallel interference canceler for CDMA with realistic channel estimation," Wireless Communications and Networking Conference, 2002. WCNC2002. 2002 IEEE, Vol. 1, pp 369-373, 17-21 Mar. 2002	1-5, 9-13, 17-21, 24-28
A	US 2002/0101910(Patent Application Publication) A1 1 Aug. 2002 see summary of the invention	1, 9, 17, 24
A	US 5644592 A 1 July 1997 (California Institute of Technology) see summary of the invention	1, 9, 17, 24

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002/0101910(Pat. Appl. Pub.) A1	1 Aug. 2002	none	
US 5644592 A	1 July 1997	none	

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